

7.0. Concluding Comments.

7.1. In 1981, Peter F. Drucker, Clarke Professor of Social Sciences, Claremont Graduate School, observed,

I see government as obese and muscle-bound and having lost its capacity to perform...Government can no longer control the economy, because the world economy controls all of us. National governments have become totally impotent. The only ones that do reasonably well are those that take their cue from the world economy, like Japan.

I also anticipate changes in the working habits of tomorrow, with ideas and information being moved rather than people. With the advent of the railroad, streetcars, and the automobile, we were able to move people, but ideas could not be transported, so people had to be brought together. Now, through electronic communication, ideas are far easier and cheaper to transport than people.

(Bib Item Nr.2) Sanoff, Alvin P., Title: A Conversation with Peter Drucker, NOBODY BELIEVES ANY MORE THAT GOVERNMENT DELIVERS, U.S. News & World Report, December 21, 1981, pp 74-75. .

Drucker's slashing attack on government, including the U.S. government, may have some truth. Certainly, his comment about the world economy and Japan has substance; we are now beginning to see the impact of the global economy and a hoste of other problems on the United States as we enter the 1990s. Nevertheless, most Americans believe that their government and the national economy have sufficient resiliency to keep the dream alive, and that with our enlightened leadership and dedicated citizens, we will forge ahead. However, we are not going to succeed, unless we apply more intelligent thought to solve our problems. This is why I believe that science communications will have to be given a new look in this mixed-up era of potent electronic communication, unparalleled investments in Federal and private sector R&D, growing mountains of unused or unusable scientific and technical information and data, under-developed technology transfer mechanisms, gridlocked transportation in many of our cities, almost intractable social problems, and very much more. Do we have any other option?

NOTE NR.3 TO THE EDITOR: Consideration should be given to adding a new section to Chapter Six, an EPILOGUE. This would be a salient list of those factors, trends, events, that taken together reveal the new information /communication that has evolved in the last few years to serve -- as a backdrop for further recommended changes. Alternatively, the new EPILOGUE section could be described as the STI-NEW ENVIRONMENT, acronym (STI-NE), if fleshed out could be the subject of a new book, but this is not the intention in this book. I will list, sometimes describe, just enough in this volume to make significant points. These illustrative points of light will not necessarily be in order of importance. If it is deemed desirable, this re-ordering can be done in the editing phase. But I can only surmise that the editor will agree that this will be a much better book, if it resonates with today's relevance and tomorrow's needs. One additional thought, if we agree on the use of an epilogue, we can divide the individual items into two groups: those that are the products

of the current period, starting with WW II or slightly earlier, and those that are future-oriented, with early trail-blazers observable currently. Parenthetically, if we use the epilogue technique for the end of the book, we might want to consider the use of a prologue that will tie together historical developments that preceded the government's incursion into STI prior to and during World War II. However, the book's components are included, we will want to discuss the most appropriate technique. I will commence with a few illustrative examples.

EPILOGUE

WHERE WE ARE The importance of information, its ownership, its access, its processing, its dissemination and its application were well understood from the rise of the human society. It would be fatuous to think otherwise. The rise and fall of nation-states during the history of mankind had much to do with their information skills and their invention and use of information technology. The real difference between then and now was the introduction of science and technology, which gave seven-league boots to communications and transportation. Fast interconnections 'democratized' the process by providing real or attainable information resource access to millions of the world's people. We began to refer to a 'wired-up' world and the 'global village.' Telherd de Chardin coined the evocative word noosphere, the band of intelligence that swirls around the world. Electronic networks exploded in number, starting off with those in science, technology and finance. Their annual rate of growth is prodigious and so are their costs. Scholars, like Daniel Bell, quickly perceived that we were undergoing a rapid passage into new economic realities, thus the Post-Industrial Society, featuring the service sector, an encompassing word that included the rapidly growing information sector manned by the knowledge workers. Governments, in one way or another, have always been information buffs, but with the beginning of the modern Information Age, say starting around World War II, they came into the information business with both feet, often with two left or right shoes, depending on their political persuasion. They found at least three major tasks. The first of these is to modernize their own considerable information processes, one that almost all countries have found difficult and vexing. The second task is to galvanize the information resources in both public and private sectors in an effective manner that will contribute to the security and welfare of the citizenry. A third task is to design candidate models of international information orders or 'world brains' as some call them. There are devoted thinkers who have already set their sights on this conquest. Because much of what is going on in these three areas is out in the open, if we are lucky, there will be useful convergence that will make the economics, the intellectual tasks and the hard work easier for all.

STI-NE NR. 1. It appeals to reason that we seem to be like space travellers, standing at the edge of a huge, new world. National sovereignty that we so easily accepted as the natural order for centuries is being elbowed by a surge towards a world economy for which national borders are seemingly irrelevant. We are, all of us, aware of the demiurgic power of the computer, communication satellites, and other information technology, and are well-grounded in the dictum that all of man's institutions are now on trial, resulting from a surge of global developments, not excluding the UNEXPECTED QUASI-ADOPTION OF THE CONCEPT

OF GLASNOST BY THE SOVIET'S MIKHAIL GORBACHEV, LITERALLY COMING OUT OF THE BLUE, AND SUPPORTED AT LEAST INITIALLY BY THE USSR RULING ELITE, CAN BE CONSIDERED AS A VARIANT OR AN OFF-SHOOT OF THE FREEDOM OF INFORMATION MOVEMENT OF THE FREE WORLD. IT CAN ALSO BE CONSIDERED A FRUIT OF THE INFORMATION REVOLUTION. POTENTIALLY, IN THE LONG HAUL, THIS MAY SIGNAL AN ERA OF INCREASED STI INTERCHANGE, IF IT PANS OUT, A CHANGE MAY AFFECT ALL COUNTRIES INCLUDING THE COMMUNIST AND DEVELOPING COUNTRIES. IN THE SHORT HAUL, THE THRUST TO PROTECT U.S. SENSITIVE TECHNICAL INFORMATION WILL PROBABLY CONTINUE. THIS APPROACH WILL BE REINFORCED BY OUR EFFORTS TO IMPROVE OUT ABILITY TO COMPETE WITH ALL NATIONS.

STI-NE NR.2 -IT MAY RESULT IN MORE U.S. STI OPENNESS WITH COMMUNIST COUNTRIES. IF SO. FEDERAL AGENCY STI MANAGERS MAY BE ENCOURAGED BY THE WHITE HOUSE TO OPEN UP EXCHANGES WITH USSR STI LEADERSHIP. THE DEEP CONCERN THAT FATHERS THE PUSH FOR 'PROTECTING' U.S. STI KNOW-HOW MAY DIMINISH OVERNIGHT, IF THIS IS MADE TO WORK.

STI-NE NR. 3 - THERE ARE ALSO A WIDENING NUMBER OF ENVIRONMENTAL AND HEALTH DATABASES CREATED AND OPERATED BY FEDERAL AGENCIES, OFTEN WORKING WITH INTERNATIONAL ORGANIZATIONS. FOR EXAMPLE, NOAA'S NEDRES (National Environmental Data Referral Service) HAS A COMPUTER-SEARCHABLE DATA BASE OF ENVIRONMENTAL INFORMATION ALLOWING INTERDISCIPLINARY DATA SEARCHES ON TOPICS OF GLOBAL, NATIONAL AND LOCAL IMPORTANCE. THE NEDRES BROCHURE EXPLAINS THAT THE DATA BASE IS A VALUABLE RESOURCE, PROVIDING ACCESS TO THE SOURCES AND HOLDERS OF DATA VITAL FOR RESEARCH AND INFORMED DECISION-MAKING. The brochure points out that coastal areas, in particular, offer a broad range of air, land and water data, useful to climatologists, architects, lawyers, biologists, ecologists, engineers and others. The size of the holdings is impressive. On a global basis, there are 5420 air data sets, 4184 land data sets, and 9760 water data sets. There are thousands of these environmental data bases available to users. It is in the interest of the United States to advertise and disseminate broadly these and kindred data bases all ready widely in use as a matter of policy. An operant long- term policy pertaining to the environmental, health and similar data bases of value to all nations should be worked out with the United States taking the lead role. Furthermore, the U.S. should propose new world data bases when their need becomes apparent, and be prepared to pay for a reasonable share of the costs of establishing and maintaining them.

STI-NE NR.4. Picking up fromn the UNISIST and similar experiences, the United States should anticipate the future and formulate a national and global information policy for world consideration, preferably with co-sponsors, that will anticipate a new global STI order, using electronics and other high technology, wherever possible, dropping as premature and self-defeating references to control of news media personnel.

STI-NE NR. 5. The United States should take the lead in insisting that the benefits of the Information Revolution should ultimately be shared by all societies, but above all, information access for the humblest of the nations is a right to be cherished and fulfilled.

STI-NE NR. 6. There is one cloud on the horizon of the Information Age that continues to intrude its presence. This concern has to do with

prudence, time, costs and resources to get from Information Point A to Information Point X. My general proposition is that rhetorically, society must achieve a superlative array of Federal, national, and by extension, international, information systems and subsystems. From a practical standpoint, no matter how we total-up the costs, it is going to be a prohibitively expensive proposition. especially if we follow the present, uncharted route we are embarked upon, one that features relatively, uncoordinated growth through maximum competition, coupled with minimalist cooperation. Somewhere in the range of the total competition - cooperation continuum we must select a few affordable models to target, models that will achieve some kind of a reasonable consensus in the world of governments, science, technology and education and their sponsors.

STI-NE NR. 7. Corresponding to the way information programs were prepared in the past, being related to the information state-of-the-art at any given time, they were comparatively small, compartmentalized and largely independent of one another. The notions of scale, coordination and integration of STI, for example, were just becoming a reality, although not fully understood, with the birth of electronic information development during and after World War II. Free flow of STI electronically, even within the Federal R&D agencies, was still an alien concept. Similarly, the discipline-based STI systems, paper- and ink-based for centuries, faced an uncertain future with the arrival of the electronic information technologies. Just as World War II and the flight of the Soviet Sputnik satellite induced a monumental shift from "small science to big science" during and after the war, a phenomenon that brought billions of dollars and millions of scientists, engineers and R&D projects into the science and technology business, it had a kindred effect on the science and technology information business. The shifts were so large that the notion of Federal R&D policy became inevitable and common-place, even though an imperfect art. The same logic began to apply to the Federal STI field, which was probably consuming as many dollars or more than Federal R&D expenditures made before and during early World War II days. The need for Federal STI planning and policy really broke ground during the 1950s and 1980s, only to become submerged in the 1970s and 1980s.

STI-NE-Nr.8 Much has been written about illiteracy in recent years. In 1982, Barbara Bush told a group of journalists that since the 1950s, the United States dropped from the 18th most literate member of the United Nations to the 49th. In the early 1980s, she stated that there were 60 million Americans who were illiterate or functionally illiterate. Their numbers inflate the ranks of the unemployed and of those who live outside of the law, costing society billions of dollars. She added,

This country spends \$6.6 billion to keep 700,000 illiterates in jail. They represent 60 percent of the prison population. Eighty-five percent of the delinquents who end up in court are disabled readers. In addition, the armed forces and private industry spend millions year to teach basic skills.

(bib Note) Gaiter, Dorothy G., Barbara Bush Says Illiteracy Is an Epidemic, New York Times, September 16, 1982. Excerpted from a talk to a

luncheon meeting of Women in Communications, Helmsley Palace Hotel, New York City, N.Y.

This includes scientific illiteracy. Statistics of how U.S. youth measures up to children of other countries in scientific literacy have been recently made public; American children were at the bottom of the list. Corroboratory statistics are widely in evidence. Mrs. Bush, whose husband is now the President, is expected to use her "bully pulpit" to further support a literacy crusade and help him to become the "Education President." This is cited because it exemplifies other damaging realities. It does not take many years to plummet from the first rank of the best educated countries to a much lower one. There may be a high and uncompromising correlation between a nation's educational prowesss and its economic primacy. Moreover, the burgeoning extent of our highly advertised illiteracy, ignorance, crime, drug addiction and other antisocial behavior in the world's oldest and largest democracy does not go unnoticed in other countries, a fact of life which throws cold water on our ability to claim the leadership of the Free World.

While our devotion to a policy of let-it-all-hang-out information dissemination makes it necessary, though uncomfortable, to reveal all of our blemishes to a fascinated world, we must counterbalance the negative fall-out with a program to skillfully use the tools of the Inforrnation Age to help solve our problems and move on to greater conquests for the United States and the democratic ideal. ÿÿ

